

FIG. 1

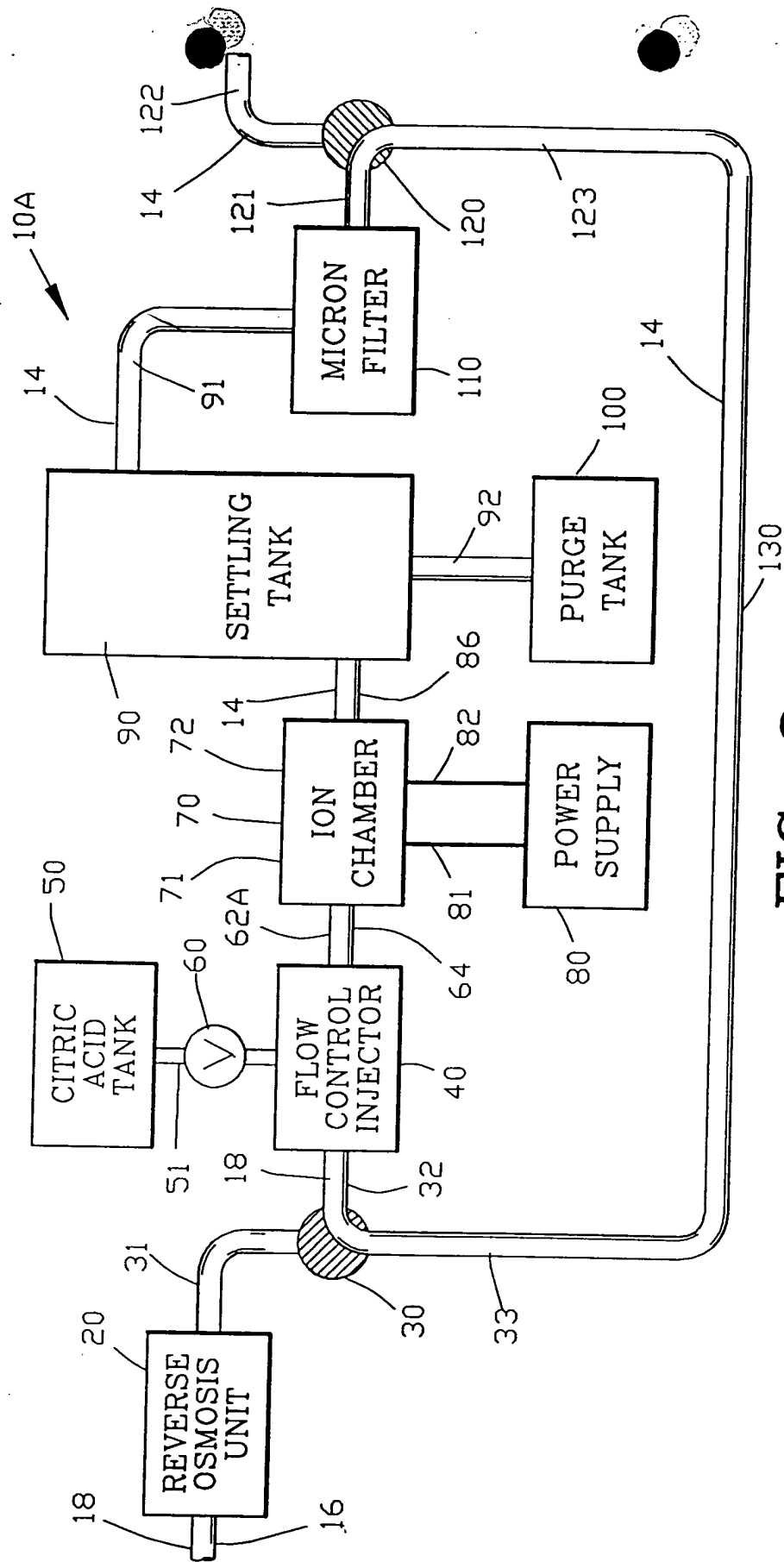


FIG. 2

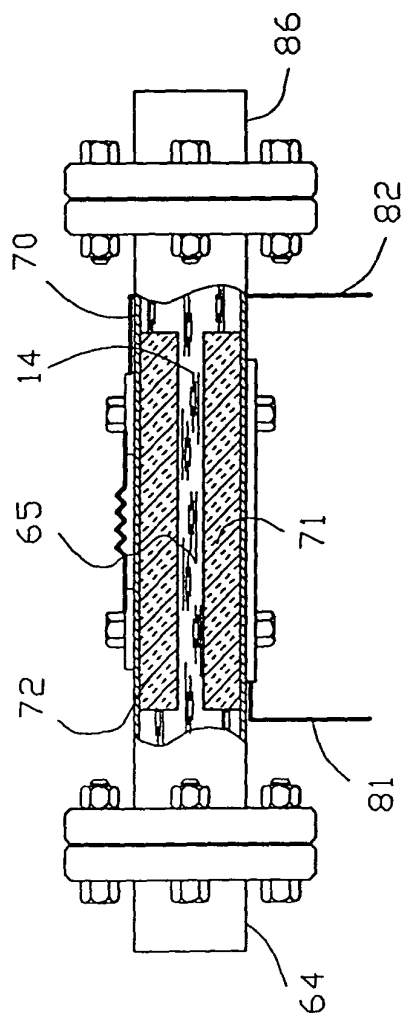


FIG. 3

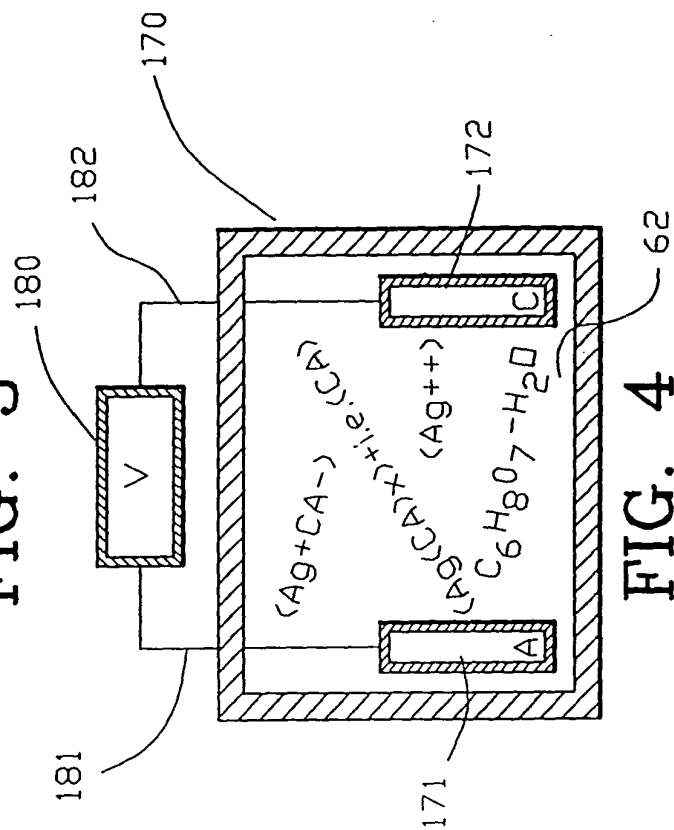


FIG. 4

## INITIAL INTERVAL SHELF-LIFE TEST

	<u>1% Citric Acid</u>			<u>10% Citric Acid</u>		
	<u>3 ppm</u>	<u>30 ppm</u>	<u>300 ppm</u>	<u>3 ppm</u>	<u>30 ppm</u>	<u>300 ppm</u>
Week 1	1.006	9.630	2.060	0.676	0.690	145.94
	0.983	9.925	1.960	0.434	1.010	157.32
	1.174	9.765	1.490	0.688	0.865	165.34
Avg.	1.054	9.773	1.837	0.599	0.855	156.20
Week 2	0.877	0.455	<0.050	0.858	4.580	158.62
	0.649	0.310	<0.050	0.950	4.635	157.10
	0.738	0.290	<0.050	0.870	4.765	159.18
Avg.	0.755	0.352	<0.050	0.893	4.660	158.30
Week 3	0.630	0.925	2.690	1.140	15.060	160.62
	0.688	2.150	6.600	1.230	27.025	163.44
	0.666	3.380	0.110	1.370	26.605	158.68
Avg.	0.661	2.152	3.133	1.247	22.897	160.91
Week 4	0.624	2.115	1.260	3.094	3.355	151.82
	0.652	0.850	8.830	2.094	4.865	163.10
	0.600	1.055	0.140	2.582	7.975	169.96
Avg.	0.625	1.340	1.743	2.590	5.398	161.63

FIG. 5

## SECONDARY INTERVAL SHELF-LIFE TEST

	<u>1.0% Citr Acid</u>	<u>5.0% citric Acid</u>	<u>10% Citric Acid</u>
Week 0	772.0 mg/L	282.0 mg/L	678.0 mg/L
Week 7	143.3 mg/L	359.2 mg/L	824.6 mg/L
Week 14	139.8 mg/L	359.6 mg/L	842.5 mg/L
	143.6 mg/L	355.9 mg/L	822.0 mg/L
	140.5 mg/L	358.2 mg/L	817.3 mg/L
Mean	141.3 mg/L	357.9 mg/L	827.3 mg/L
Week 21	1.063 mg/L	350.2 mg/L	982.9 mg/L
	1.022 mg/L	335.0 mg/L	1019.4 mg/L
	1.066 mg/L	331.0 mg/L	1017.3 mg/L
	1.050 MYLL	338.7 mg/L	1006.5 mg/L

FIG. 6

## EFFICACY AGAINST SALMONELLA CHOLERASUIS

Sample	15 sec.	1 Minute	5 Minutes	10 minutes	30 minutes
Ethanol 20% (a)	1.93E+06	7.10E+05	5.20E+03	2.00E+02	1.00E+02
Ethanol 20% (b)	2.38E+06	1.02E+06	7.10E+03	3.00E+02	1.00E+02
Ethanol 20% (c)	1.66E+06	6.70E+05	8.90E+03	1.00E+02	1.00E+02
Etbacol 20% (d)	1.95E+06	6.70E+05	8.50E+03	1.00E+02	1.00E+02
Average	1.98E+06	7.68E+05	7.43E+03	1.75E+02	1.00E+02
% Reduction	81.3208	92.7594	99.9300	99.9983	99.9991
Ag Citric Acid & ETOH (a)	6.00E+03	1.00E+01	1.00E+01	1.00E+01	1.00E+01
Ag Citric Acid & ETOH (b)	6.80E+03	1.00E+01	1.00E+01	1.00E+01	1.00E+01
Ag Citric Acid & ETOH (c)	5.27E+03	1.00E+01	1.00E+01	1.00E+01	1.00E+01
Ag Citric Acid & ETOH (d)	4.81E+03	1.00E+01	1.00E+01	1.00E+01	1.00E+01
Average	5.72E+03	1.00E+01	1.00E+01	1.00E+01	1.00E+01
% Reduction	99.9460	99.9999	99.9999	99.9999	99.9999
Citric Acid (a)		1.35E+06	8.00E+01	1.00E+01	1.00E+01
Citric Acid (b)		1.22E+06	5.00E+01	1.00E+01	1.00E+01
Citric Acid (c)		1.00E+06	1.00E+02	1.00E+01	1.00E+01
Citric Acid (d)		1.27E+06	7.00E+01	1.00E+01	1.00E+01
Average		1.21E+06	7.50E+01	1.00E+01	1.00E+01
% Reduction		88.5849	99.9993	99.9999	99.9999
Inoculum (a)				7.30E+06	
Inoculum (b)				1.39E+07	
Average				1.06E+07	

**FIG. 7**

## EFFICACY AGAINST STAPHYLOCOCCUS AUREUS

Sample	15 sec.	1 Minute	5 Minutes	10 minutes	30 minutes
Ethanol 20% (a)	4.29E+06	9.30E+06	6.80E+06	9.30E+06	7.20E+06
Ethanol 20% (b)	9.30E+06	8.40E+06	9.70E+06	8.40E+06	1.06E+07
Ethanol 20% (c)	1.06E+07	8.20E+06	7.40E+06	8.30E+06	8.50E+06
Ethanol 20% (d)	1.00E+07	8.20E+06	8.10E+06	8.50E+06	1.23E+07
Average	8.55E+06	8.53E+06	8.10E+06	8.63E+06	9.65E+06
% Reduction	37.8364	38.0000	41.8182	37.2727	29.8182
Ag Citric Acid & Ethanol (a)	2.54E+06	5.51E+04	1.00E+01	1.00E+01	1.00E+01
Ag Citric Acid & Ethanol (b)	2.67E+06	2.50E+04	1.00E+01	1.00E+01	1.00E+01
Ag Citric Acid & Ethanol (c)	6.83E+06	8.00E+04	1.00E+01	1.00E+01	1.00E+01
Ag Citric Acid & Ethanol (d)	4.46E+06	8.10E+04	1.00E+01	1.00E+01	1.00E+01
Average	4.13E+06	6.03E+04	1.00E+01	1.00E+01	1.00E+01
% Reduction	70.0000	99.5616	99.999	99.9999	99.9999
Ag Citric Acid (a)		6.99E+06	1.06E+06	9.10E+03	1.00E+01
Ag Citric Acid (b)		5.50E+06	6.90E+05	8.30E+03	1.00E+01
Ag Citric Acid (c)		7.31E+06	8.00E+05	1.89E+04	1.00E+01
Ag Citric Acid (d)		5.87E+06	9.70E+05	1.66E+04	1.00E+01
Average		6.42E+06	8.80E+05	1.32E+04	1.00E+01
% Reduction		53.3271	93.6000	99.9038	99.9999
Citric Acid (a)		7.10E+06	1.06E+07	1.17E+07	1.13E+07
Citric Acid (b)		8.20E+06	9.70E+06	1.18E+07	7.40E+06
Citric Acid (c)		1.05E+07	8.60E+06	6.70E+06	2.80E+06
Citric Acid (d)		6.00E+06	9.60E+06	7.30E+06	1.06E+07
Average		7.95E+06	9.63E+06	9.38E+06	8.03E+06
% Reduction		42.1818	30.0000	31.8182	41.6364
Inoculum (a)			1.41E+07		
Inoculum (b)			1.34E+07		
Average			1.38E+07		

**FIG. 8**

## EFFICACY AGAINST PSEUDOMONAS AERUGINOSA

Sample	15 sec.	1 min.	5 mins.	10 mins.	30 mins.
Ethanol 20% (a)	2.85E+06	2.95E+06	8.10E+06	3.70E+06	2.30E+06
Ethanol 20% (b)	3.26E+06	2.90E+06	7.30E+06	3.90E+06	2.25E+06
Ethanol 20% (c)	2.37E+06	2.50E+06	6.70E+06	3.14E+06	5.70E+06
Ethanol 20% (d)	2.55E+06	2.50E+06	7.50E+06	3.00E+06	6.90E+06
Average	2.76E+06	2.71E+06	7.40E+06	3.44E+06	4.29E+06
% Reduction	66.9760	67.5150	11.3772	58.8623	48.6527
Ag citric Acid & ETOH (a)	9.60E+05	1.58E+04	1.00E+01	1.00E+01	1.00E+01
Ag Citric Acid & ETOH (b)	1.27E+06	1.43E+04	1.00E+01	1.00E+01	1.00E+01
Ag Citric Acid & ETOH (c)	1.58E+06	1.40E+04	1.00E+01	3.00E+01	1.00E+01
Ag Citric Acid & ETOH (d)	1.43E+04	1.41E+04	1.00E+01	5.00E+01	1.00E+01
Average	9.56E+05	1.46E+04	1.00E+01	2.50E+01	1.00E+01
% Reduction	88.5500	99.8257	99.9999	99.9997	99.9999
Ag Citric Acid (a)		3.17E+06	9.10E+05	1.51E+04	1.00E+01
Ag Citric Acid (b)		2.55E+06	1.38E+06	2.22E+04	1.00E+01
Ag Citric Acid (c)		3.08E+06	1.13E+06	3.91E+04	Lost count
Ag Citric Acid (d)		2.64E+06	1.03E+06	3.17E+04	3.00E+01
Average		2.86E+06	1.11E+06	2.70E+04	1.67E+01
% Reduction		65.7485	86.6766	99.6763	99.9998
Citric Acid (a)		7.90E+06	3.03E+06	7.30E+06	7.50E+06
Citric Acid (b)		6.90E+06	2.70E+06	7.70E+06	2.90E+06
Citric Acid (c)		1.29E+07	2.88E+07	2.22E+06	6.10E+06
Citric Acid (d)		1.00E+07	2.72E+07	7.90E+06	2.80E+06
Average		9.43E+06	1.54E+07	6.28E+06	4.83E+06
% Reduction		-12.8743	-84.8204	24.7904	42.2156
Inoculum (a)			7.80E+06		
Inoculum (b)			8.90E+06		
Average			8.35E+06		

**FIG. 9**